## Practice: 580 - Streambank and Shoreline Protection

**Scenario # 1 Vegetative**

**Scenario Description:** **Missouri**

Protection of streambanks consisting of conventional plantings of vegetation to stabilize and protect against scour and erosion. The purpose of this practice is to maintain, improve, or restore physical, chemical, and biological functions of a stream to provide diverse aquatic communities to improve habitat for desired aquatic species. Payment cost include shaping bank, critical area vegetation and erosion control fabric; a 6-foot high bank at 3(H):1(V) slope for 1000 linear feet (0.46 acres) is used for estimation purposes.Resource Concerns: Soil Erosion - Excessive Bank Erosion from Streams, Shoreline and Water Conveyance Channels; Water Quality Degradation - Excessive Sediment in Surface Waters; Water Quality Degradation - Elevated Water Temperature; Excess/Insufficient Water - Excessive Sediment in Surface Waters; Inadequate Habitat for Fish and Wildlife- Habitat Degradation.Associated Practices include: 560 - Access Road; 342 - Critical Area Planting; 382 - Fence; 391 - Riparian Forest Buffer; 390 - Riparian Herbaceous Cover; 395 - Stream Habitat Improvement and Management; 614 - Watering Facility

**Before Practice Situation:**

A stream bisects the agricultural property and has had all of the woody vegetation removed due to overgrazing or human manipulation; the stream has marginally degraded streambanks that are unstable and show signs of active erosion. Soil Erosion: The streambank is unstable.Water Quality Degradation: The sediment load has increased in the stream resulting in elevated water temperatures.Excess/Insufficient Water: The excessive sediment load has reduced the water conveyance capacity, storage capacity and flow within the stream.Inadequate Habitat for Fish and Wildlife: The deficiencies in the stream's habitat limit survival, growth, reproduction, and/or diversity of aquatic organisms within the stream.

**After Practice Situation:**

The streambank is stable against further erosion and encourages natural sediment transport and deposition. Loss of riparian areas and sediment load is reduced in the stream.For Soil Erosion: The streambank is stable.For Water Quality Degradation: The sediment load has decreased in the stream resulting in improved aquatic habitat.For Excess/Insufficient Water: The water conveyance capacity, storage capacity and flow within the stream has been stabilized.For Inadequate Habitat for Fish and Wildlife: The reduction in the sediment load promotes survival, growth, reproduction, and/or diversity of aquatic organisms within the stream's habitat.

**Scenario Feature Measure:**

Linear Feet of Streambank/Shoreline Protected

| **Scenario Typical Size:** | 1000 | Linear Foot | Tot Unit Cost | $14.75 |
|---|---|---|---|---|

| Cost Category | Component Name | Quantity | Unit | Unit Cost | Cost |
|---|---|---|---|---|---|
| Materials | Ryegrass, Annual (Lolium multiflorum) | 100 | Pound | $1.25 | $125.00 |
| Materials | Erosion Control Blanket, biodegradable | 2222 | Square Yard | $1.46 | $3,244.12 |
| Materials | Fescue, Tall (Festuca arundinacea) | 100 | Pound | $1.80 | $180.00 |
| Equip./Install. | Excavation, Common Earth, side cast, small | 2500 | Cubic yard | $1.96 | $4,900.00 |
| Equip./Install. | Dozer, 80 HP | 16 | Hour | $57.19 | $915.04 |
| Equip./Install. | Seeding Operation, Broadcast, Ground | 0.46 | Acre | $21.11 | $9.71 |
| Labor | Supervisor or Manager | 56 | Hour | $37.21 | $2,083.76 |
| Labor | General Labor | 80 | Hour | $21.56 | $1,724.80 |
| Labor | Equipment Operators, Light | 16 | Hour | $20.92 | $334.72 |
| Mobilization | Mobilization, Supervisor or Manager | 7 | Hour | $36.87 | $258.09 |
| Mobilization | Mobilization, small equipment | 1 | Each | $136.80 | $136.80 |
| Mobilization | Mobilization, medium equipment | 2 | Each | $200.43 | $400.86 |
| Mobilization | Mobilization, General labor | 20 | Hour | $21.81 | $436.20 |

Total Cost: $14,749.10

**Payment types:**

| PayType | Unit Payment | PayType | Unit Payment |
|---|---|---|---|
| EQIP-CCPI | $11.06 | EQIP-HUCCPI | $13.27 |

## Practice: 580 - Streambank and Shoreline Protection

**Scenario # 2** **Structural**

**Scenario Description:** **Missouri**

Protection of streambanks using rock riprap to stabilize and protect banks of streams or excavated channels against scour and erosion. Additional structural measures may also include tree revetments; log, rootwad and boulder revetments; dormant post plantings; piling revetments with wire or geotextile fencing; piling revetments with slotted fencing; jacks or jack fields; rock riprap; stream jetties; stream barbs; and gabions. The purpose of this practice is to maintain, improve, or restore physical, chemical, and biological functions of a stream to provide diverse aquatic communities to improve habitat for desired aquatic species. Payment cost include shaping bank, critical area vegetation, geotextile, and rock rip rap; a 10-foot high bank at 2(H):1(V) slope for 500 linear feet is used for estimation purposes. The rock will be 2' thick and 10' high. The bank above the riprap will be graded to a stable slope and revegetated.Resource Concerns: Soil Erosion - Excessive Bank Erosion from Streams, Shoreline and Water Conveyance Channels; Water Quality Degradation - Excessive Sediment in Surface Waters; Water Quality Degradation - Elevated Water Temperature; Excess/Insufficient Water - Excessive Sediment in Surface Waters; Inadequate Habitat for Fish and Wildlife- Habitat Degradation.Associated Practices include: 560 - Access Road; 342 - Critical Area Planting; 382 - Fence; 391 - Riparian Forest Buffer; 390 - Riparian Herbaceous Cover; 395 - Stream Habitat Improvement and Management; 614 - Watering Facility

**Before Practice Situation:**

A stream bisects the agricultural property and has had all of the woody vegetation removed due to overgrazing or human manipulation; the stream has severely degraded streambanks that are unstable and show signs of active erosion. Soil Erosion: The streambank is unstable.Water Quality Degradation: The sediment load has increased in the stream resulting in elevated water temperatures.Excess/Insufficient Water: The excessive sediment load has reduced the water conveyance capacity, storage capacity and flow within the stream.Inadequate Habitat for Fish and Wildlife: The deficiencies in the stream's habitat limit survival, growth, reproduction, and/or diversity of aquatic organisms within the stream.

**After Practice Situation:**

The streambank is stable against further erosion and encourages natural sediment transport and deposition. Loss of riparian areas and sediment load is reduced in the stream.For Soil Erosion: The streambank is stable.For Water Quality Degradation: The sediment load has decreased in the stream resulting in improved aquatic habitat.For Excess/Insufficient Water: The water conveyance capacity, storage capacity and flow within the stream has been stabilized.For Inadequate Habitat for Fish and Wildlife: The reduction in the sediment load promotes survival, growth, reproduction, and/or diversity of aquatic organisms within the stream's habitat.

**Scenario Feature Measure:**

Cubic Yard of Riprap

| **Scenario Typical Size:** | 833 | Cubic Yard | Tot Unit Cost | $51.16 |
|---|---|---|---|---|

| Cost Category | Component Name | Quantity | Unit | Unit Cost | Cost |
|---|---|---|---|---|---|
| Materials | Rock Riprap, graded, angular, material and | 1250 | Ton | $26.80 | $33,500.00 |
| Equip./Install. | Hydraulic Excavator, 2 CY | 32 | Hour | $161.94 | $5,182.08 |
| Equip./Install. | Geotextile, woven | 1222 | Square Yard | $2.18 | $2,663.96 |
| Labor | Equipment Operators, Light | 32 | Hour | $20.92 | $669.44 |
| Labor | Supervisor or Manager | 4 | Hour | $37.21 | $148.84 |
| Mobilization | Mobilization, Supervisor or Manager | 2 | Hour | $36.87 | $73.74 |
| Mobilization | Mobilization, large equipment | 1 | Each | $374.89 | $374.89 |
| | | | | Total Cost: | $42,612.95 |

**Payment types:**

| PayType | Unit Payment | PayType | Unit Payment |
|---|---|---|---|
| EQIP-CCPI | $38.37 | EQIP-HUCCPI | $46.04 |